CDR IN OPERATIONS

HIRS Clear-sky Channel 12 Brightness Temperature

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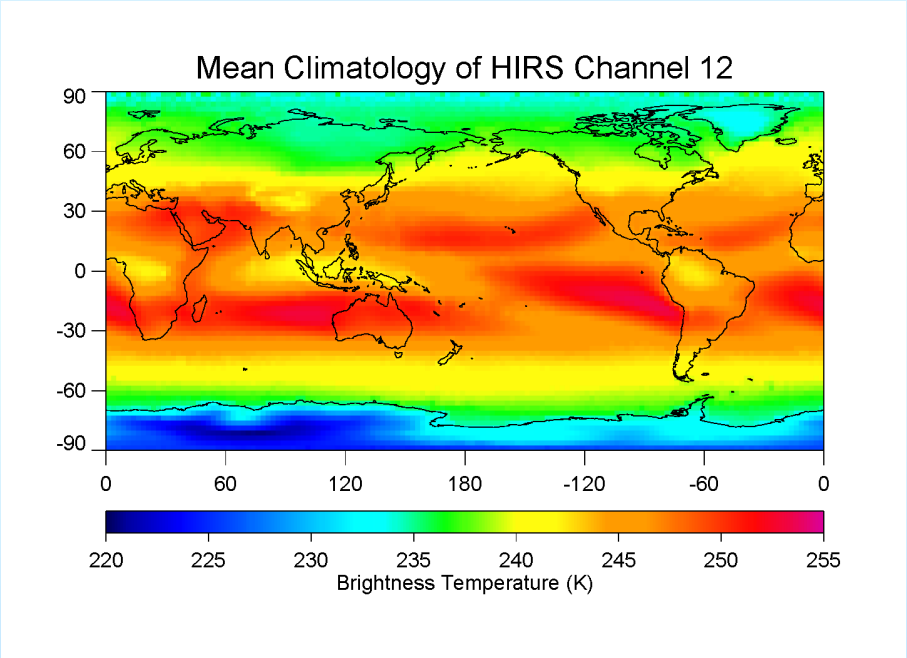
Outline

- Short Project Description
- Production and QA Approach
- Applications
- Schedule & Issues

Product Description

- CDR specifications
  - Global coverage
  - Clear-sky pixel resolution
  - Monthly mean on 2.5˚x2.5˚ Grid
  - Nov 1978 – Present
  - Updated monthly

- Uses of the CDR
  - Long-term water vapor climate variability
  - Climate model evaluation
  - Large-scale atmospheric circulation study
  - Tropical expansion study
  - Tropical wave diagnostics and forecast



Product Delivery Description

CDR(s)	Period of Record	Temporal Resolution	Update Frequency	Update Lag	Spatial Resolution	Data file distinction criteria	Do you publicly serve the CDR at your institution?
HIRS Clear-sky Channel 12 Brightness Temperature	Late 1978-present	daily	monthly	21 days	Pixel resolution	Files are defined by day and satellite	Data served by NCDC CDRP only

Collateral products provided with the CDRs:

- HIRS all-sky brightness temperature data
- HIRS clear-sky limb-corrected brightness temperature data

Validation & Quality Assurance

- Validation work recently conducted or planned (efforts that could update precision, accuracy and uncertainty information for products)
  - Data were compared with upper tropospheric water vapor measurements from AMSU-B/MHS and Metoesat MVIRI/ SEVIRI

- Assess product quality for each update period (e.g., day/week/month) used to extend the long term record
  - Comparison against long term values/continuity
  - Comparison among overlapping satellite measurements

Concerns, Risks and Issues

- Describe any algorithm or product errors or problems that have been discovered (by your team or others)
  - Data are limited to clear-sky coverage
- Describe any technical risks or issues that may jeopardize your sustained provision of the CDR(s) for the next 3 years (assuming funding is covered)
  - Time series will continue as long as HIRS observations are available

Uses & Applications

- Applications and Uses
  - Study long-term upper tropospheric water vapor climate variability
  - Study the tele-connection patterns with major climate indices
  - Study the trend in Walker circulations
  - Study Tropical expansion
  - Provide reference data to inter-calibration of Geostationary measurement

- Key Scientific Findings (from yours, or similar CDRs by others)
  - The HIRS Channel 12 Brightness Temperature has high corrections with several major climate indices (Niño3.4, PDO, PNA indices) in cold seasons (Shi and Bates, 2011).
  - Data can used to track major tropical events such as El Niño Southern Oscillation.
  - The Hadley and Walker circulations have intensified since 1979 (Sohn and Park, 2010).

Schedule

- CDR status
  - Previous time series spans1978-2009
  - The time series is now extended to 2012

- 1-3 Year Planning Horizon
  - Re-processing may be required when improved inter-satellite calibration becomes available